

Title (en)  
METHOD FOR PRODUCING SEAMLESS METAL PIPE

Title (de)  
VERFAHREN ZUR HERSTELLUNG EINES EIN NAHTLOSEN METALLROHRES

Title (fr)  
PROCÉDÉ DE FABRICATION D'UN TUYAU MÉTALLIQUE SANS SOUDURE

Publication  
**EP 3120942 A1 20170125 (EN)**

Application  
**EP 15764059 A 20150316**

Priority  
• JP 2014056370 A 20140319  
• JP 2015001439 W 20150316

Abstract (en)  
A solid billet is piercing-rolled using a 4 roll-type inclined rolling mill including larger-diameter cone-type main rolls (1, 1') arranged horizontally or vertically to face each other across a pass line (X-X) and smaller-diameter auxiliary rolls (7, 7') arranged vertically or horizontally to face each other similarly across the pass line between the facing main rolls, while maintaining a feed angle (<sup>2</sup>) and cross angle (<sup>3</sup>) of the main rolls and a feed angle (<sup>2'</sup>) and cross angle (<sup>3'</sup>) of the auxiliary rolls to be within the ranges: 5° ≤ <sup>2</sup> ≤ 25°; 3° ≤ <sup>3</sup> ≤ 35°; and 10° ≤ <sup>2</sup> + <sup>3</sup>, <sup>2'</sup> + <sup>3'</sup> ≤ 55°. Preferably, a diameter (d<sub>0</sub>) of the solid billet and a diameter (d) and wall thickness (t) of the hollow piece after the piercing satisfy the relationship: 1.5 ≤ d<sub>0</sub> ·  $\frac{r}{\dot{\epsilon}}$  ≤ 4.5 (where  $\dot{\epsilon} = \ln(2t/d_0)$ , and  $\dot{\epsilon}_s = \ln\{2(d - t)/d_0\}$ ). With this configuration, it is possible to produce a thin-wall hollow piece at a high reduction rate from a billet made of a less formable material.

IPC 8 full level  
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CPC (source: EP RU US)  
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